

International scientific research collaboration for arid lands and desert development.



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Intensifying humankind's work in scientific research collaboration on deserts and arid lands has at least two significant payoffs. The first benefit is tied up with our quest to explore, exploit (mining and raw materials), and colonize outer space, thus to our future in the medium and long term. The second interest is linked to our current urgent concerns on Earth.

In order to boost the chances of a successful human settlement in outer space, and due to the unbearable cost of real experimentation in outer space, it would be suitable to get to know well and study our Earthian deserts. In fact, till now, explored planets are deserts and arid lands, hopefully, this will not be the case forever, but these planets fit the definition of arid lands. Considering its similarities with outer space deserts make space simulations on Earth's deserts reasonably affordable. Not only do we need to broaden scientific and technological research on deserts to be ready to do the same in outer space, but we also need to dig deeper into the research on the desert economy, desert wealth and resources, and desert management. Since it is a valuable shortcut in the way of understanding what might be the economics of space (space economy and space industry)? Actually, several activities related to space economics have already begun, like space tourism and space field stations' related business (launch centers, experimentation and simulation desert field stations).

A potential giant leap in the direction of exploration of outer space and the exploitation of its resources might lead us to review the most evident postulates and assumptions on which are based our economic systems, and it could even lead to turning them upside down. For instance, what would be our reaction regarding the concept of scarcity if we came upon a massive planet that consists of a large percentage of one of the minerals that we consider rare on Earth (gold, for example)? What are the most striking and provocative transformations that may arise in our economies if such a scenario becomes a reality?

In an international context marked by an expansion in the area of the desert (desertification) and drylands due to drought and climatic changes, the second payoff of strengthening international scientific research on arid lands is stimulating its sustainable development. It would also help in successfully coping with some pressing global challenges that we face today on Earth, such as water scarcity (water stress), energy crisis, and food insufficiency (food security).

Coastal deserts (Moroccan Sahara Atlantic deserts, for instance) are the perfect place where projects incorporating the nexus of water, energy, and food are more sustainable and affordable. Indeed, coastal deserts fulfill four encouraging features: the proximity to the ocean or the sea, a constant high amount of solar radiation throughout the year, very often a steady and powerful blowing wind, combined with the fact that the soil of these littoral deserts is commonly fertile. Such distinguishing traits will make cost competitive the foods grown from desert agriculture irrigated by desalinated seawater using solar or wind energies. From the previous motivating insights, we conclude that federating the efforts of scientific research institutions, universities, and organizations from different countries around the world on these challenging vital issues is the rigorous and most effective approach to shift it into promising opportunities in the service of desert development.